Amendments To The Specification

Please replace the third full paragraph on page 3 of the specification with the following substitute paragraph:

Figure 1A provides an amino acid sequence comparison between human PK2 (SEQ ID NO.: 27) and ~~PK2L~~ the immature PK2β (or PK2L, SEQ ID NO.: 28), without signal peptide (the 21 additional amino acids in PK2L are highlighted in bold letters; the furin recognition sequences are underlined; the potential furin-cutting sites are indicated by arrows). Figure 1B shows an amino acid sequence comparison between human and rat/mouse PK2L peptides (SEQ ID NO.: 29) (rat and mouse PK2L peptides are identical; the putative furin recognition sequences are underlined). Figure 1C illustrates the gene structure of PK2 and the differential exon usage by PK2 and PK2L mRNA (the numbers indicate the nucleotide positions in PK2 and PK2L coding regions, respectively; ATG and STP represent the translation start and stop codons, respectively).

Please replace the paragraph spanning pages 16-17 of the specification with the following substitute paragraph:

To investigate the functional roles of PK2L, PK2L cDNA was expressed in mammalian cells in parallel with PK1 and PK2 and the expressed proteins were purified. The recombinant peptides were made by expressing the FLAG-tagged proteins, cleaving away the tags, and purifying the final products by HPLC. While the final products for PK1 and PK2 expression were as we expected, the purified peptide from cells expressing PK2L cDNA was significantly smaller than we expected. Comparison of PK2L peptides in the cell lysate (unsecreted) and the medium (secreted) indicated that PK2L is made in the cells as expected but is further processed into the smaller form by proteolytic cleavage. Protein sequence analysis of PK2L indicated that there exist two putative furin cleavage sites (Arg-Arg-Lys-Arg^{60}, SEQ ID NO.: 25, and Arg-Ser-Lys-Arg^{65}, SEQ ID NO.: 26), which fit the Arg-X-Lys-Arg or Arg-X-Arg-Arg motif for furin cleavage sites (Steiner et al., "The new enzymology of precursor processing endoproteases," *J Biol Chem* **267:** 23435-23438 (1992); Nakayama, "Furin: a mammalian subtilisin/Kex2p-like endoprotease involved in processing of a wide variety of precursor proteins," *Biochem J* **327:**

625-635 (1997)). The similar furin cleavage sites are also present in mouse and rat PK2L, but are absent in PK1 and PK2 peptides. Since furin is expressed by many different cells including COS-7 cells (Yanagita et al., "Processing of mutated proinsulin with tetrabasic cleavage sites to mature insulin reflects the expression of furin in nonendocrine cell lines," *Endocrinology* **133:** 639-644 (1993)), PK2L is probably cleaved by endogenous furin during secreting from COS-7 cells. Indeed, co-expression of furin facilitates the cleavage process.

Please replace the second full paragraph on page 17 of the specification with the following substitute paragraph:

The 56-amino acid sequence of the PK2β mature peptide (SEQ ID NO.: 1) possesses only 47 amino acids of the N-terminus of PK2 and still acts as a potent full agonist for PKR1, indicating that the functional domain of PK is located at the N-terminus. Indeed, sequence comparisons among PK1, PK2, MIT, and BV8 indicate that they share much higher conservations at the N-terminus than at the C-terminus.